

REMARKS/ARGUMENTS

Claims 31 - 60 are pending in this application.

Claims 31, 33, 34, 37, 39, 42 – 46, 49, 50, 51, 53, 54, and 56 - 58 have been amended.

Applicants have attempted to be fully compliant with the outstanding Office Action. Therefore, it is respectfully requested that this amendment, in its entirety, replace the amendment filed February 9, 2004. Required corrections to the claims have been made and additional arguments have been presented as required in order for the amendment to meet the requirements of 37 CFR 1.12(c) and 1.111.

In the Office Action, claims 31 – 59 are rejected under 35 U.S.C. 112, second paragraph, as failing to point out and distinctly claim the subject matter which Applicants regard as the invention. Also, in the Office Action, claims 31 – 39 and 45 - 52 are rejected under 35 U.S.C 102(e) as being anticipated by or, in the alternative, under 35 U.S.C 103(a) as obvious over, US Patent No. 5,988,189 to Mohindra et al. Additionally, in the Office Action, claims 40 - 44 and 52 - 59 are rejected under 35 U.S.C 103(a) as being unpatentable over US Patent No. 5,988,189 to Mohindra et al in view of US Patent No. 5,915,396 to Kinose, US Patent No. 5,950,643 to Miyazaki et al, US Patent No. 5,996,241 to Thompson et al, and US Patent No. 5,975,097 to Yonemuzi et al.

With respect to the rejection of claims 31 – 59 under 35 U.S.C. 112, second paragraph, Applicant has amended claims 31, 33, 34, 37, 39, 42 – 46, 49, 50, 51, 53, 54, and 56 - 58. With respect to the amendment of claim 31, this claim now explicitly recites the performance of steps a) through e) for the one tank and the performance of

steps f) to j) for the other tank in a parallel and in a time staggered manner. With respect to the query raised in the Office Action that the claims are incomplete because they lack a step of preparing the second treatment fluid, Applicant notes that the present application discloses, for example, that the second treatment fluid can be "diluted hydrofluoric acid" (see, for example, the disclosure of the addition of "DHF" into the treatment tanks 18 and 16). This second treatment fluid can thus be a conventionally available treatment fluid such as the disclosed "diluted hydrofluoric acid" and, as such, there is no need to prepare this second treatment fluid as it is already prepared in a suitable condition for introduction into the respective one tank or the other tank. Thus, Applicant submits that the lack of a step of preparing the second treatment fluid in the method recited in claim 31 does not render this claim incomplete.

With respect to the amendment of claim 51, this claim has now been amended to recite that the at least one first treatment fluid supply unit has a fluid circuit in which treatment fluid can be constantly kept moving to prevent a separation or static alteration of the treatment fluid in the at least one first treatment fluid supply unit. With respect to those claims that introduce their limitations by the term "wherein", Applicant submits that each of these claims is not indefinite for the reason that the respective recited limitation or limitations recited in each of such claims following the term "wherein" set forth a specific step or structure and it is clear that each such recited specific step or structure is not an optional step or structure. For example, claim 48 recites an apparatus according to claim 47, wherein each tank is provided with an overflow and it is clear that the specific structure of "an overflow" is a limitation that is not optional. Accordingly, it

is respectfully requested that the rejection of claims 31 - 59 under 35 U.S.C. 112, second paragraph, be withdrawn.

Applicants respectfully traverse the rejections of claims 31 - 59 under 35 U.S.C 102(e) and 35 U.S.C 103(a) in view of the following comments. Claim 31 of the present application as currently amended recites a method for treating substrates in at least one of two tanks, each of which can be filled with at least two treatment fluids, the method being carried out for each of the tanks. The inventive method recited in claim 31 as currently amended includes the steps of a) preparing a first treatment fluid in a processing unit that is common to both of the tanks, wherein the processing unit has a capacity designed for a single treatment tank, b) charging one of the tanks with substrates, and c) introducing the treatment fluid into the one tank for a predetermined period of time to contact the substrates. Additionally, the inventive method includes the further steps of d) introducing at least a second treatment fluid into the one tank to contact the substrates and e) removing the substrates from the one tank. Moreover, the method recited in claim 31 includes the steps of: f) preparing the first treatment fluid in the processing unit that is common to both of the tanks, g) charging the other of the tanks with substrates, h) introducing the treatment fluid into the other tank for a predetermined period of time to contact the substrates, i) introducing at least a second treatment fluid into the other tank to contact the substrates, and j) removing the substrates from the other tank. Furthermore, the inventive method includes the further steps a) to e) for the one tank and steps f) to j) for the other tank being performed in parallel and in a time staggered manner in the respective tanks in such a

way that a period of time sufficient for the preparation of the first treatment fluid for subsequent introduction thereof into the other tank is provided between the end of step c) in the one tank and the start of step h) in the other tank.

The method recited in claim 31 of the present application increases the throughput of treated substrates without a significant increase in the space requirements for the apparatus that performs the substrate treatment. This economical benefit is obtained via the inventive method recited in claim 31 as currently amended in that the same processing unit for preparing the first treatment fluid provides this first treatment fluid to both substrate treatment tanks although this one processing unit has a capacity designed for but a single treatment tank. This use of the one processing unit is accomplished via the recited coordination between the performance of the recited steps a) to e) in one of the treatment tanks relative to the performance of these same steps steps f) to j) in the other treatment tank. This coordination, as specifically recited in claim 31 as currently amended, involves the performance of steps a) through e) for the one tank and the performance of steps f) to j) for the other tank in parallel and in a time staggered manner – namely, the performance of steps a) to e) “in parallel” in that the sequence of steps a) to e) performed for the one tank and the sequence of steps f) to j) for the other tank are performed separately but identically in both of the two treatment tanks with the performance of these steps being “in a time staggered manner” in that the preparation of the first treatment fluid in the one processing unit (i.e., the next-following batch for supply to the other tank) is performed between the end of step c) performed at the one treatment tank (“introducing said treatment fluid into said one

tank for a predetermined period of time to contact said substrates”) and the start of this same step h) at the other treatment tank.

The arrangement disclosed in Mohindra et al ‘189 is directed to a cleaning system 1, 5 having multiple cleaning chambers 200. Each cleaning chamber 200 includes an interior region sufficient for immersing a carrier 242, which has at least one wafer disposed therein, into an ultra-clean liquid. In accordance with the operation of the Mohindra et al ‘189 cleaning system, each cleaning chamber 200 is filled with an ultra-pure liquid which – as is exemplarily described in Mohindra et al ‘189 with reference to Figures 8 and 9 thereof – is supplied at the same time into the plurality of the cleaning chambers 200.

Mohindra et al ‘189 does not disclose nor even hint at the desirability of a treatment method as recited in claim 31 of the present invention. In contrast, Mohindra et al ‘189 discloses the supply of a treatment fluid to a plurality of cleaning chambers 200 at the same time, whereupon it is inherent that the Mohindra et al ‘189 cleaning system comprises a processing unit of a sufficient size for simultaneously preparing and supplying several rations of treatment fluid.

In view of the fact that the Mohindra et al ‘189 cleaning system comprises a treatment fluid processing unit for the preparation and supply of several tank-size rations of treatment fluid at the same time – i.e., contemporaneous supply of prepared treatment fluid to a plurality of treatment tanks, it follows that there would be no need to contemplate an operation of the Mohindra et al ‘189 cleaning system that would coordinate a deliberately limited processing unit capacity with the cleaning operation

(such as, for example, the deliberately limited single tank supply capacity of the processing unit recited in claim 31 of the present application). And, in fact, the Mohindra et al '189 arrangement does not provide any suggestion of this sort; instead, Mohindra et al '189 merely discloses sizing its treatment fluid processing unit as a function of the number of treatment tanks that are to be contemporaneously supplied with treatment fluid prepared by the processing unit. Moreover, beyond the failure of Mohindra et al '189 to generally suggest or disclose the idea of a deliberately limited processing unit capacity, there is clearly no suggestion or disclosure in Mohindra et al '189 of any coordination of the supply of treatment fluid in connection with such a deliberately limited single tank supply capacity of the processing unit, let alone any suggestion or disclosure in Mohindra et al '189 of the particular coordination of the supply of treatment fluid performed by the inventive method recited in claim 31 of the present application.

Thus, it is submitted that the method for treating substrates, as recited in claim 31 of the present application, is neither taught by, nor disclosed in, Mohindra et al '189. Additionally, it is submitted that none of the other prior art of record overcomes the deficiencies noted above with respect to Mohindra et al '189.

Accordingly, in view of the fact that neither Mohindra et al '189 nor the other prior art of record teach or disclose the inventive method or apparatus of the present invention, it is respectfully submitted that the rejections of claims 31 - 59 under 35 U.S.C 102(e) and 35 U.S.C 103(a) should be withdrawn.

A new claim 60 has also been submitted for consideration. Claim 60 is patentable over the cited references for the reasons discussed above.

Applicants submit that claims 31 - 60 are now in condition for allowance and early action toward that end is respectfully requested. However, should the Examiner have any further comments or suggestions, the undersigned would very much welcome a telephone call from him in order to resolve any outstanding issues and expedite placement of the application into condition for allowance.

Respectfully Submitted,

A handwritten signature in cursive script, appearing to read "Robert W. Becker".

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